A SYSTEMATIC STUDY OF THE MAIN ARTERIES IN THE REGION OF THE HEART—AVES

II. (CROTOPHAGA ANI), (SAUROTHERA MERLINI), AND (COCCYZUS AMERICANUS)

FRED H. GLENNY,
Department of Biology,
Western Reserve University

INTRODUCTION

In a recent paper (2), the writer discussed the arrangement of the arteries in the region of the heart of three members of the Heronidae and the Belted Kingfisher (*Ceryle alcyon*). A recent shipment of birds from the West Indies made possible the study of the arrangement of these same arteries in three members of the Cuculidae. The findings are set forth in the following observations.

OBSERVATIONS

The right and left common carotid arteries arise from the innominate arteries and proceed anteriorly to the thyroid gland. At this point each vessel gives rise to (1) an internal carotid artery which passes anteriorly along the side of the neck, and (2) an external carotid artery which soon enters the hypapophysial canal. The internal carotid is superficial and smaller than the complimentary external carotid artery. The external carotids of the Cuculidae do not fuse to form a common trunk artery as in the case of the Kingfisher.

The subclavian artery sends off the axillary artery and the internal mammary artery before giving rise to the two pectoral arteries. The internal mammary arises as a branch of the coracoid artery (new artery) which supplies the muscles in the region of the coracoid bone. In general this is the condition represented in most species of Ohio birds, and is found especially common in the Passeriformes.

As in other birds, the right 4th aortic arch arises from the right innominate artery and passes posteriorly to fuse with the right radix aorta which later joins the dorsal aorta. In both Saurothera and Coccyzus, the left radix aorta is present as a ligamentous vestige, but in Crotophaga there is a small stump of the right radix aorta with a small ligamentous tip.

In the latter, the anterior projection of the ligament is entirely wanting.

A vestige of the embryonic right 6th aortic arch is present as the Ligamentum Botalli (3) in each of the three species. This ligament is located on the ventral surface of the right radix aorta and is attached anteriorly to the pulmonary artery. The extent of this ligament varies slightly, and is most prominent in Crotophaga, somewhat reduced in Saurothera, and almost imperceptible in *Coccyzus americanus*. With reduction of the left radix aorta, the left 6th arch becomes completely absorbed and cannot be traced in the adult specimens.

CONCLUSIONS

It may be concluded that the Cuculidae show considerable similarity in the basic arrangement of the main arteries in the region of the heart. This similarity within the family may aid in the superordination of the families in the order.

Since the Kingfisher (*Cerlye alcyon*) (1 and 2) shows a more primitive condition than that found in the Cuculidae, it may be regarded by some as more primitive, but the writer must conclude that there are several points of advancement expressed in the basic arrangement over that of the Cuculidae (2), and that the retention of the left radix aorta is to be regarded as singular and characteristic of the species.

SUMMARY

1. The main arteries in the region of the heart of three species of Cuckoos were completed. The arrangement of these vessels were strikingly similar in all species.

2. The ligamentous vestige of the left radix aorta was present in each species.

3. The right Ligamentum Botalli was present in each species, but the left vestige of the 6th arch was completely atrophied.

LITERATURE CITED

(1) **Glenny, Fred H.** 1939. "An Anomalous Artery in the Kingfisher (*Ceryle alcyon*)." Columbus. The Ohio Journal of Science, 39: 94–96.

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(3) **Glenny, Fred H.** 1940. "Presence of the Ligamentum Botalli in the Golden Eagle (*Aquila chrysaëtos*) L., the Red-tailed Hawk (*Buteo borealis borealis*) Gmelin, and the common Pigeon (*Columba livia*)L." Columbus. Ohio Journal of Science, 41: 46–49.